

FIG. 1  
(Prior Art)

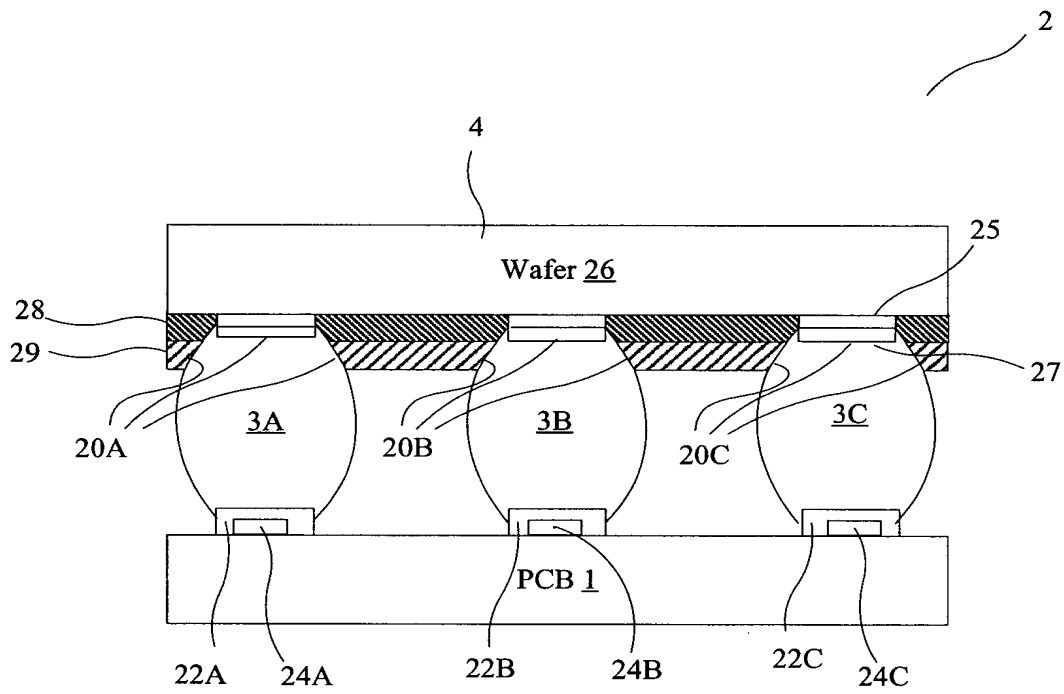


FIG. 2  
(Prior Art)

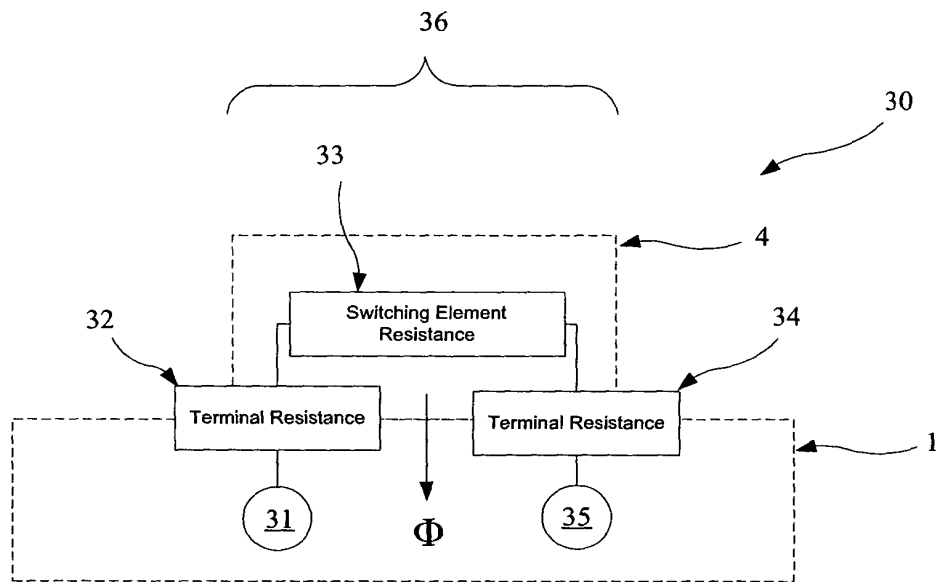


FIG. 3

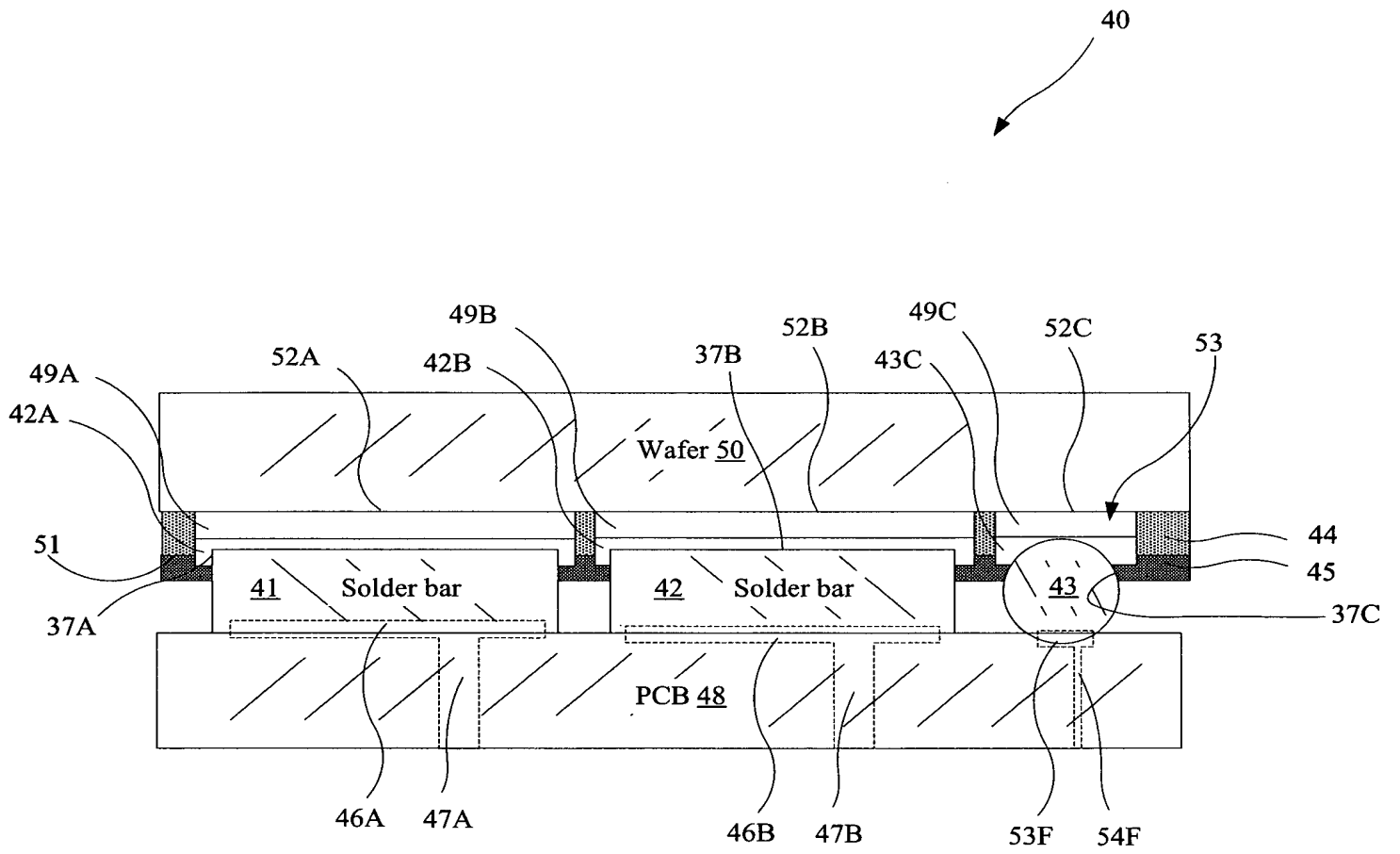


FIG. 4

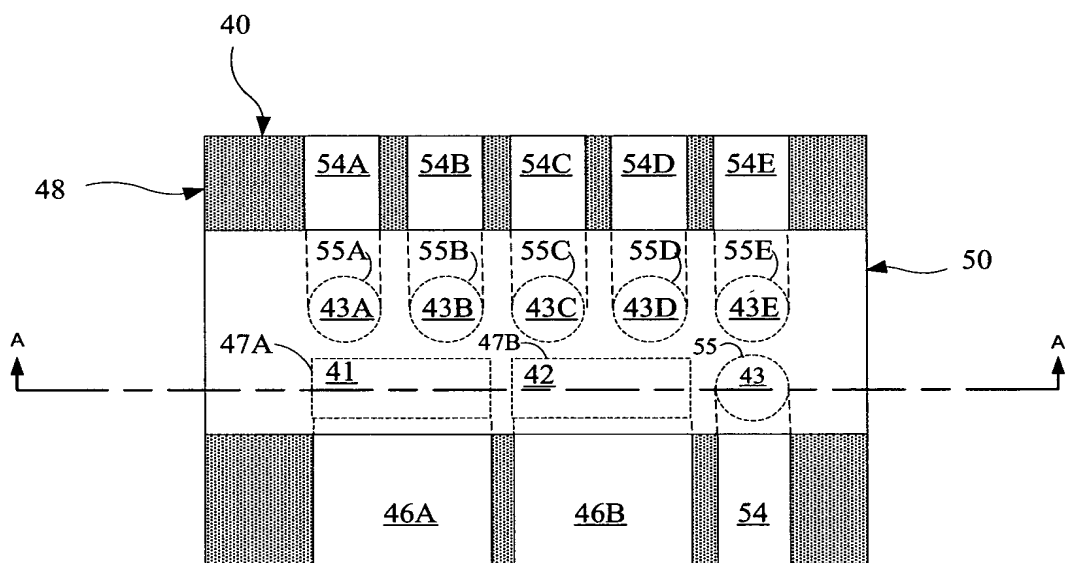


FIG. 5

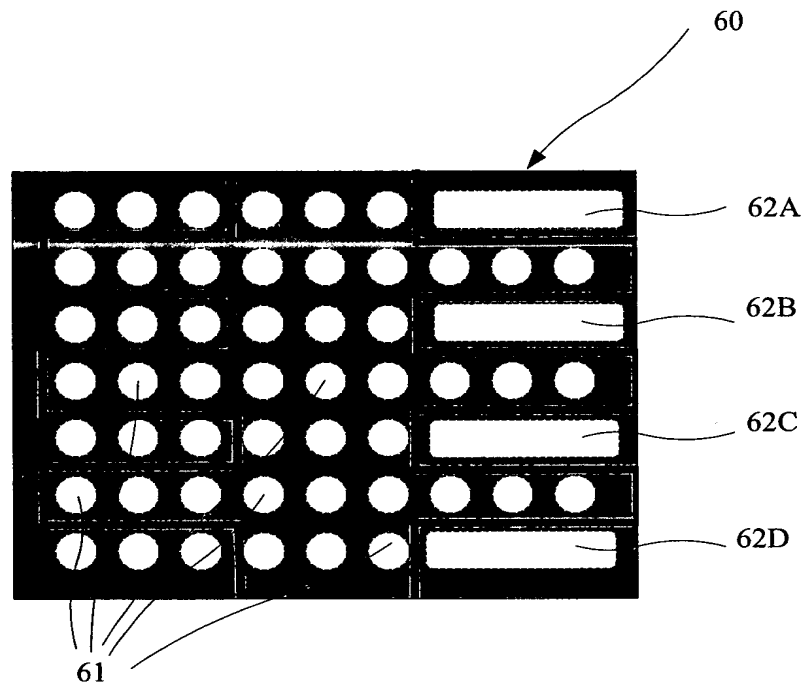


FIG. 6

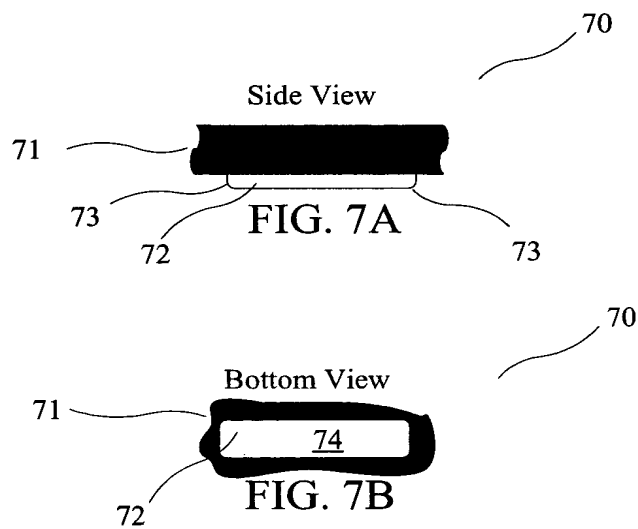


FIG. 7A

FIG. 7B

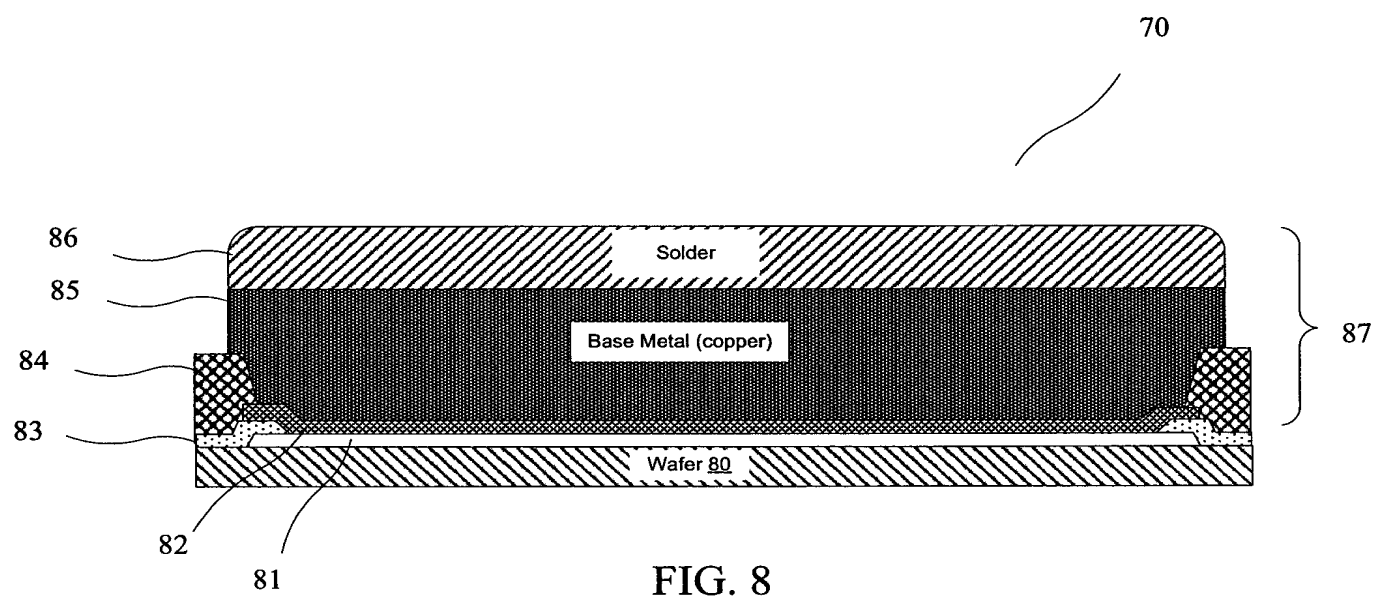


FIG. 8

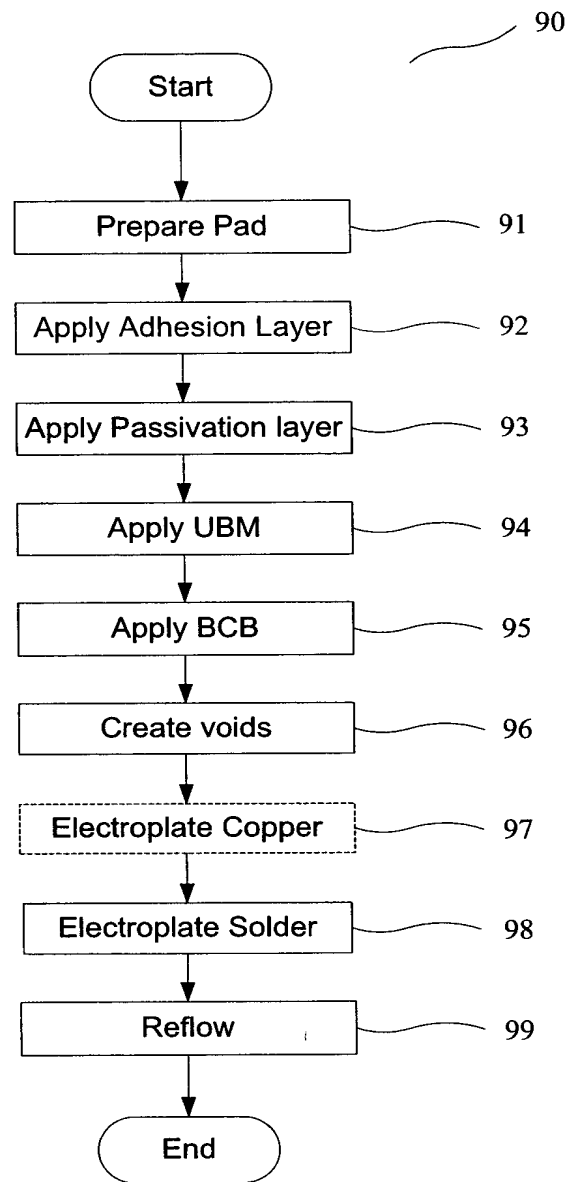
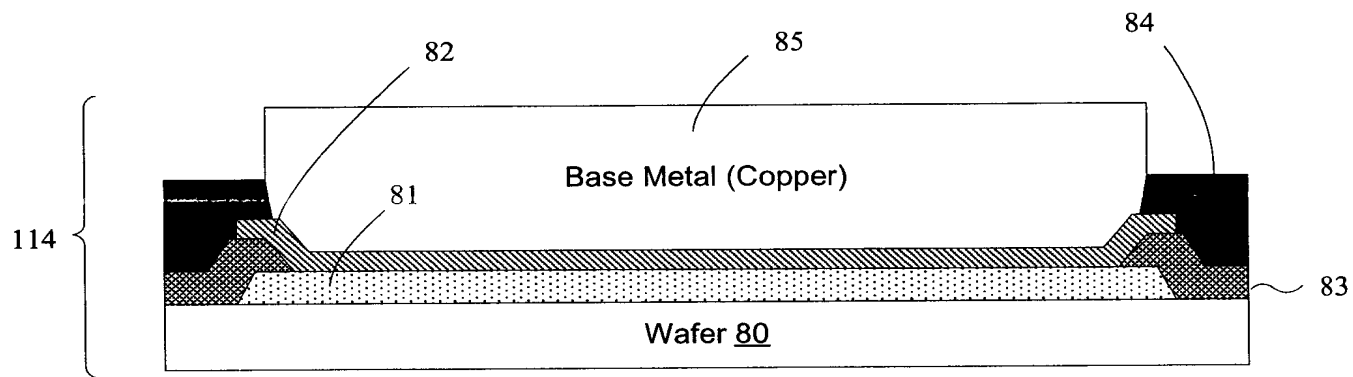
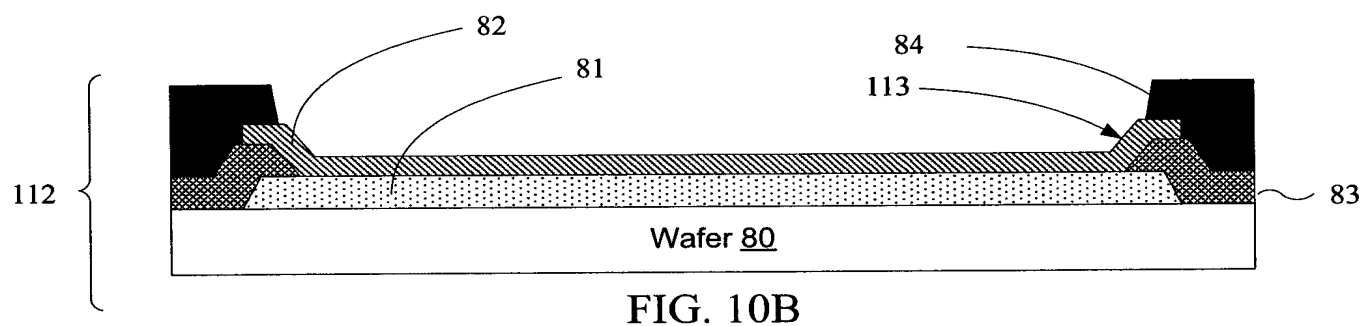
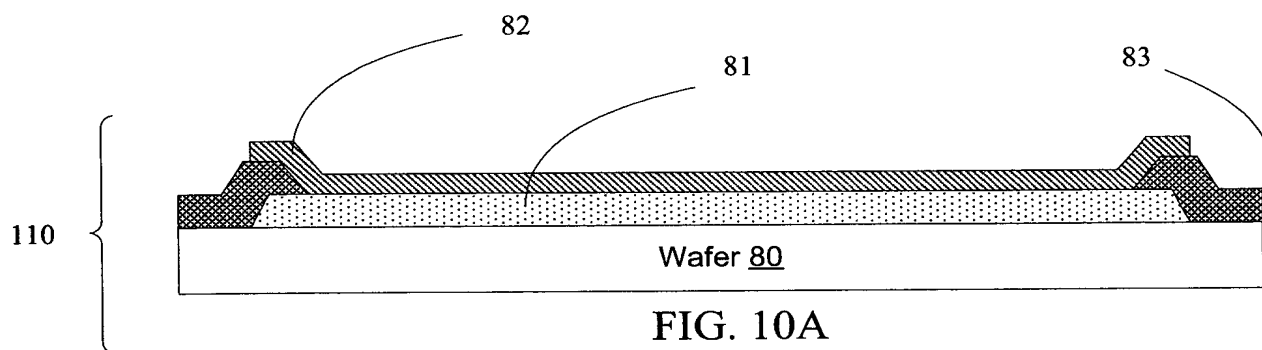


FIG. 9

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A cross-sectional view of a semiconductor device assembly 120. The assembly includes a PCB 48, a Base Metal (Copper) layer 85, and a Wafer 80. The PCB 48 is shown with a top surface 46A and a bottom surface 47A. The Base Metal (Copper) layer 85 is positioned between the PCB 48 and the Wafer 80. The Wafer 80 is shown with a top surface 81 and a bottom surface 82. The assembly is shown with a cross-section 84 and a side view 86. A bracket 120 indicates the overall assembly.

FIG. 10E

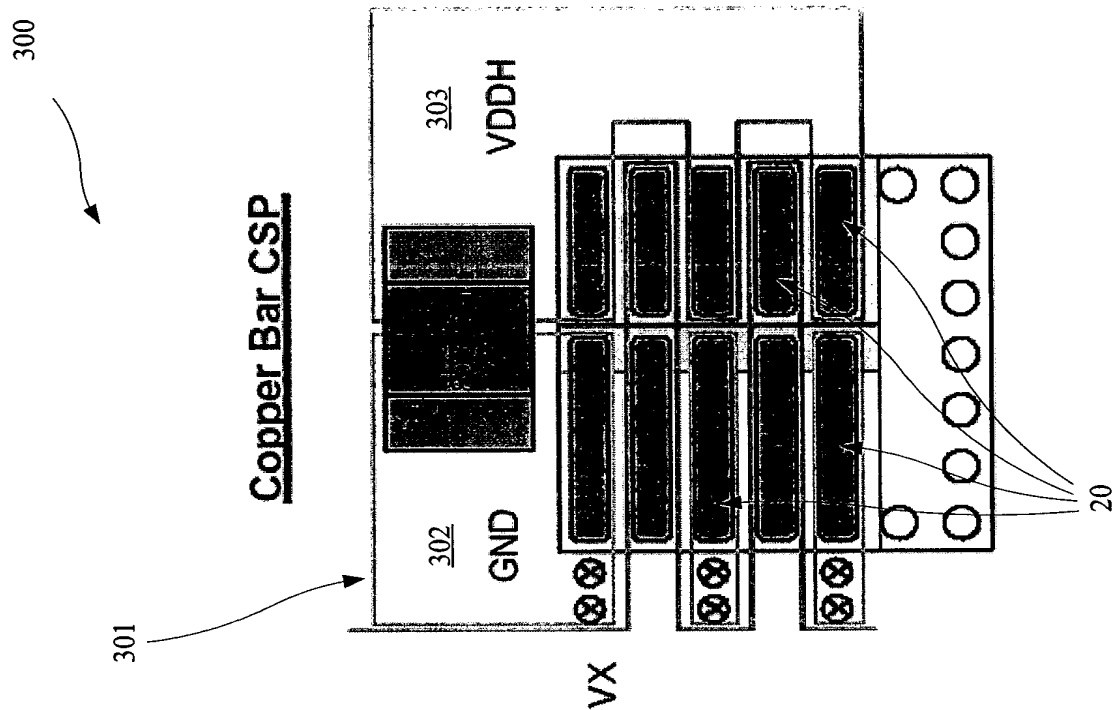
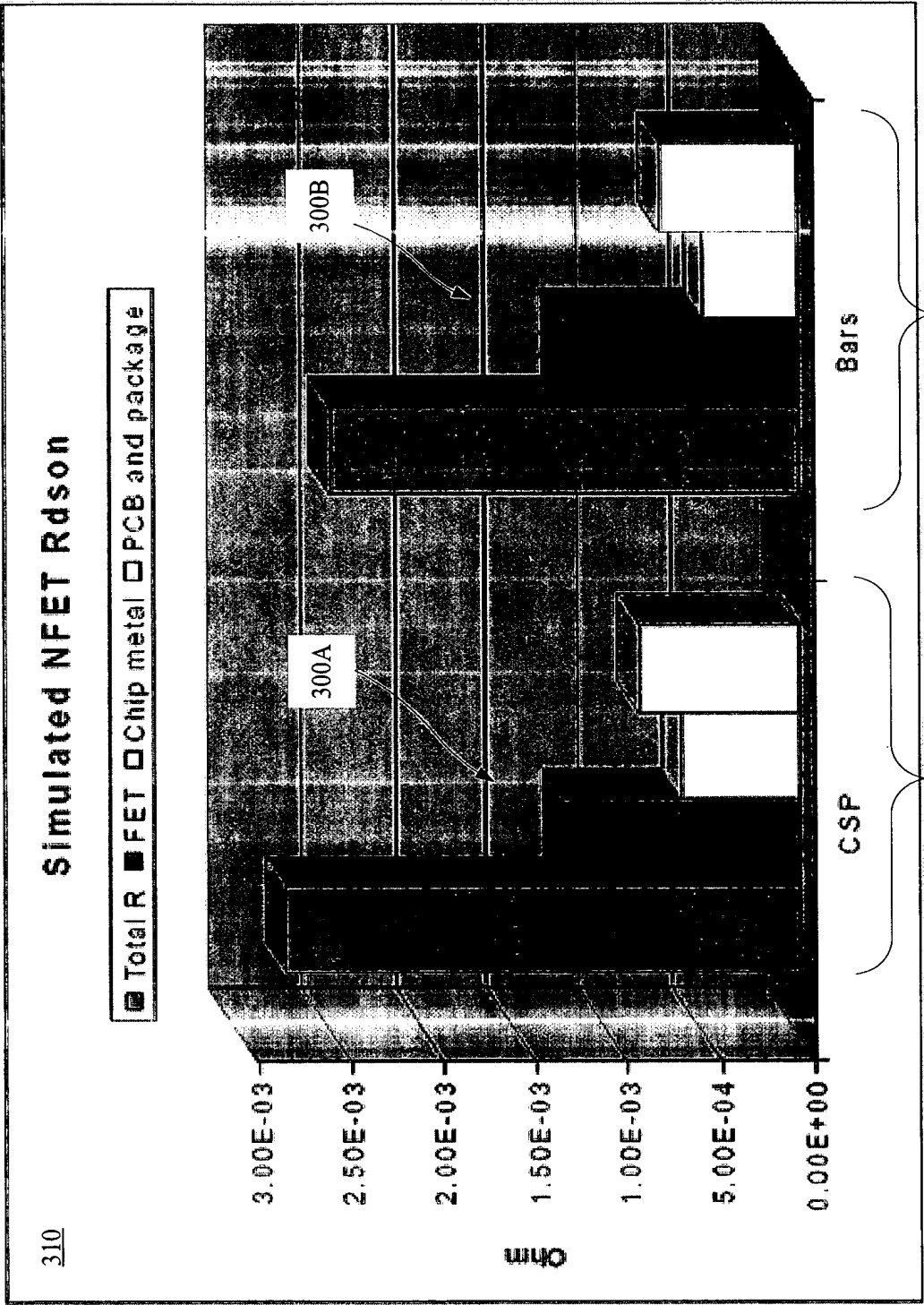


FIG. 11

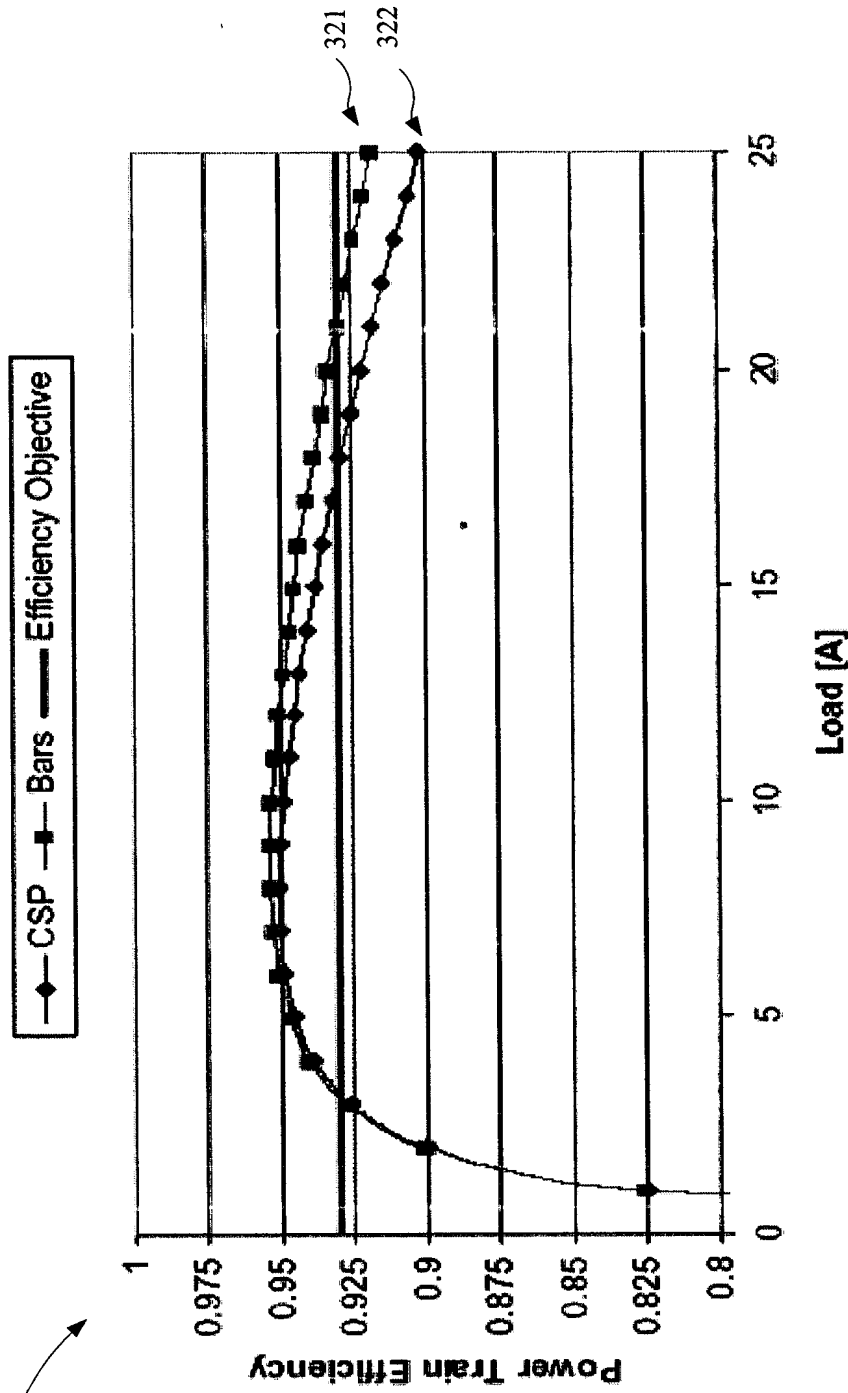


Solder bar gives 10-15% improvement in Rdson over CSP

FIG. 12

# Copper Bars Enable Higher Efficiency or Higher Current

320

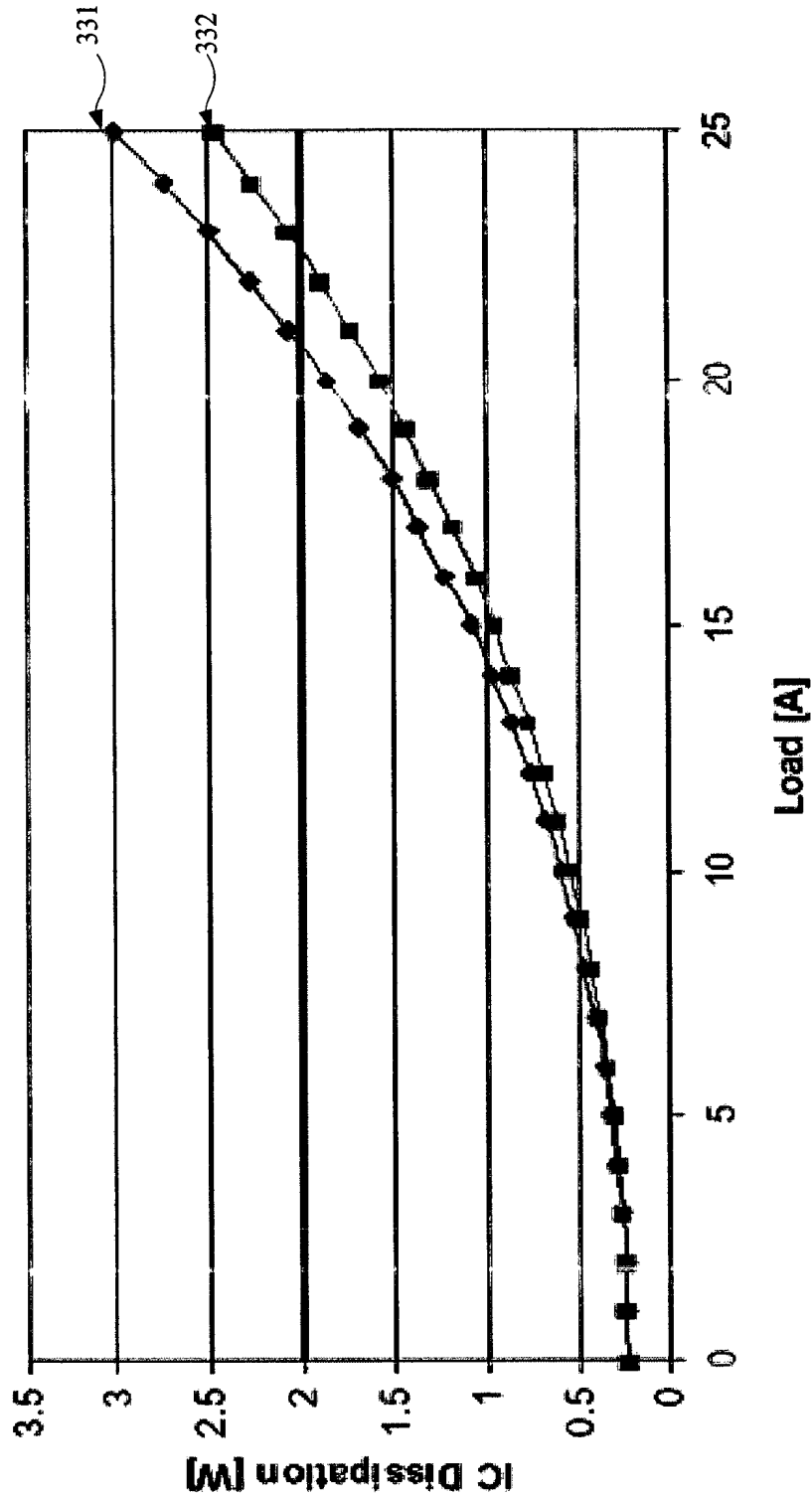


- 1.6% higher efficiency at 25A
- 3.5A more current (20%) at 93% efficiency

FIG. 13

# Copper Bars Reduce Power Dissipation

330



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- 550mW (18%) savings at 25A
- 2A more current (10%) at 2W dissipation

FIG. 14